

1 **Title of the Invention:** System and Method for Email Screening

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3 **Field of the Invention**

4 This invention related generally to sending and receipt of electronic mail over a
5 network. More particularly, the present invention is a system and method for screening
6 email for the presence of any virus and for generating revenue from the email screening
7 activity.

8 **Background**

9 It is frequently a problem that email received by an individual may contain a virus
10 which is either specifically intended to infect the machine or is inadvertently attached by
11 a known user to email being sent to a recipient. In either case, the end result is the
12 recipient having the virus infect the system. Obviously, this can lead to disastrous results.

13 Email processing for various purposes has been the subject of invention. For
14 example:

15 **U.S. Patent No. 5,889,943 to Ji, et al.** describes a method and apparatus for virus
16 detection for e-mail files. This patent describes a network of nodes separating servers
17 that perform processing functions. Particularly, the system architecture allows e-mail
18 messages to be sent to a separate server in order to be scanned. It does not deal with
19 sorting of messages to be forwarded or otherwise identifying desired from undesired
20 email.

21 **U.S. Patent No.5,623,600 to Ji, et al.** is related to the above-mentioned patent
22 ('943). This patent describes a system for scanning files on a computer network for

1 viruses. More specifically, the inventions include two methods that involve transferring
2 email messages to a separate node in order for the virus scan to be performed. One
3 embodiment provides detection from a gateway node for files sent to or from a network.
4 Each method describes the scanning function as being performed by a separate server.

5 **U.S. Patent No. 5,832,208 to Chen, et al.** describes a software program that
6 scans for and removes viruses from e-mail messages, including attached files. One
7 embodiment shows software used at the mail server of a Local Area Network (LAN) and
8 operates within the mail system. The patent discusses applications for the program in a
9 wide variety of computer architecture arrangements, including network operating systems
10 and virus detection programs. However, this method is primarily based at the e-mail
11 server. It does not deal with the sorting of email or revenue generation.

12 **U.S. Patent No. 5,901,228 to Crawford** describes a system that allows on-line
13 customers to directly access storage capability on a host system. One feature of the
14 system is that the customer may purchase virus detection capability. However, several of
15 the capabilities purchased, including virus detection require some virus-detection
16 processing to be done at the customer's computer.

17 Anti-viral services are particularly described as being executable from either a
18 virtual disk or copied onto the customer's hard drive.

19 The system described does operate when the user is off-line. The replica computer
20 can act off-line and perform functions when the customer is not connected to the system.

21 **U.S. Patent No. 5,771,354 to Crawford** is related to the above-mentioned
22 patent ('228). This patent describes an on-line system where customers use the host

1 system to perform storage and processing functions that were previously done on the
2 customer's system. Specifically, the customer connects to the provider, pays a fee, and
3 obtains the service. When the customer first contacts the provider, he must establish an
4 identifier and password. Subsequently, the customer's access is permitted with entering
5 the proper identifier and password. This service allows access by recipients of emails. It
6 does not deal with the sender of email in any way.

7 **U.S. Patent No. 5,864,683 to Boebert, et al.** describes a computer system that
8 protects a private and secure system from infiltration while a secure user is accessing a
9 wide-area access system. One embodiment describes a system where the secure user
10 connection is processed by a secure server. The secure server isolates the private and
11 wide-area access systems. The secure server is described as a non-distinguishing server
12 that automatically reroutes information packets with a certain type of header for "off-line"
13 inspection

14 As seen in several of the patents discussed above, screening e-mail messages for
15 virus infection via an off-line server is well known. While some patents address the
16 purchase of a service by a recipient to screen e-mail for viruses, recipients are charged for
17 performing the service of screening his or her e-mail for viruses.

18 These patents do not address connections that a user will make with third parties.
19 None of the patents consider any way of recouping costs from third parties (senders of
20 emails).

1 No other reference in the search describes a virus-screening system application
2 that allows third party users of the customer's system to be charged when communicating
3 with any user from the LAN.

4 What would be truly useful would be a system that allows emails and attachments
5 to be screened, and which provides notification to both the user that such email has
6 arrived and its potential subject matter, that allows a user to have email selectively
7 screened, that provides notification to senders that a screening activity has taken place,
8 and that makes a nominal charge to the sender for delivery of the scanned email.

9 **Summary of the Invention**

10 It is therefore an objective of the present invention to allow email to be screened
11 for viruses before the email is received by a user.

12 It is a further objective of the present invention to allow such virus screening to
13 take place at a location other than the users computer.

14 It is a further objective of the present invention to re-route email to an alternate
15 server for virus screening.

16 It is yet another objective of the present invention to be able to designate those
17 emails that are to be sent directly to a users computer after screening.

18 It is a further objective of the present invention to limit the amount of unsolicited
19 email received by a user.

20 It is a further objective of the present invention to develop revenue, with
21 permission of a user, for the delivery of unsolicited email.

1 It is yet another objective of the present invention to be able to designate to an
2 alternate site those emails that are not to be screened but to be sent directly to a user.

3 These and other objectives of the present invention will become apparent from a
4 review of the specification that follows.

5 The present invention is an email screening system. The invention involves all
6 email that is directed to a particular email address being rerouted to an alternate location.
7 This is accomplished by the email recipient registering his or her address with an
8 alternative location, which will be a server, of the present invention. Software that
9 resides on the recipient's machine automatically reroutes the email to this alternative
10 server.

11 At the alternative server, emails are scanned for any virus. If the email has a
12 password associated with it, indicating that it is of somewhat higher importance than an
13 un-passworded email, it is sent without delay to the recipient after it is scanned for
14 viruses and confirmed that no viruses are present.

15 In the event that the email does not have a password, a notification is sent to both
16 the intended sender and the intended recipient that the email did not include the necessary
17 password. The intended recipient is then informed of the sender name, the date of the
18 transmission, the time, the subject, and any other pertinent information that can be
19 extracted from the email, but not any attachments that may be attached to the email. In
20 this fashion, email can be scanned for viruses, but not forwarded to the intended recipient.

21 The sender of the un-passworded email is informed that for a nominal charge, the
22 intended recipient will accept the email. The nominal charge covers the cost of running

1 the service of the present invention. The nominal charge may then be shared by the
2 emails between the screening system and the intended recipient, or, the nominal charge is
3 simply kept by the web-based email screening system as payment for the screening
4 service it provides.

5 For certain email, the intended recipient can designate that any email from a
6 specific source be automatically accepted without being screened by the screening system
7 of the present invention.

8 The present invention is directed to a System for purchasing the service of
9 screening E-mail for viruses. A System user has screening software installed on his
10 computer. The screening software forwards all email received to an alternate server.
11 Each e-mail message is screened for viruses. If the e-mail message has a system
12 password associated with it, no charge is applied for the screening. The message with the
13 system password is then directly forwarded to the recipient. If the e-mail message does
14 not have a system password, the E-mail Screening System requires the sender to pay a fee
15 for the screening. Once no system password is found, the sender and recipient are each
16 notified of the attempted delivery and required fee. If the sender pays the fee, the E-mail
17 Screening System then delivers the message. Alternatively, the recipient can accumulate
18 charges for messages from outside the system and pay the fee. Then, users do not
19 experience delay in receiving messages.

20 **Brief Description of the Drawings**

21 Figure 1 illustrates the overall architecture of the present invention.

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23 Figure 2 illustrates the flowchart for email screening of the present invention.

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1 **Detailed Description of the Invention**

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3 As noted above, the present invention is a system for screening email and
4 generating revenue from the screening operations. Recipient computer 16 is connected to
5 a network, preferably the Internet 14, although this is not meant as a limitation. For
6 example, any other wide area network or intranet having email recipients and senders
7 would be suitable for the present invention.

8 Email screening server 12 is also connected to the network 14. The email
9 screening server 12 may operate on a wide variety of computers. A computer having
10 memory, storage, and network connections as well as operating system software and
11 software for executing email management functions.

12 Email sender 10 is also connected to network 14 and sends email in the typical
13 fashion to recipient computer 16. Both the recipient computer 16 and the email sender 10
14 may be, a personal computer, such as an IBM PC, with an applications platform such as
15 Windows™ or MacIntosh™, without limitation. The recipient computer 16 and email
16 sender 10 include a processor, for example a Celeron 360 or a Pentium III, and memory
17 for processing and storage.

18 In the present invention, recipient computer 16 has software to recognize when
19 email is being received regardless of the source and redirecting that email over network
20 14 to screening server 12. Screening server 12 screens the email for any viruses and any
21 passwords and performs additional functions for both recipient computer 16 and sending
22 computer 10 as more fully described in Figure 2 (below).

1 Referring to Figure 2, the overall flow of processing of email is illustrated. As
2 noted above, recipient computer senses incoming email 20. Using software of the present
3 invention email is redirected to screening server 22. Screening server then performs a
4 scan of the redirected email for the presence of any virus 24. The screening server also
5 scans to determine if any password is present 26.

6 If a password is present indicating a higher importance to the particular email that
7 has been scanned, the email is sent, assuming there is no virus present, over the network
8 to go with any attachments to the recipient 28. Any such email that is screened and where
9 a password is determined to be present is reformatted and sent to the recipient with an
10 appropriate identifier so that the screening software resident on the recipient's computer
11 allows scanned email to be received and read at the recipient's computer.

12 If there is no password present 26, the system takes two actions.

1 The first action that is taken is that a notification is sent to the recipient that an email
2 comprising no password has been received and scanned. The recipient is informed of the sender
3 name, the date of transmission, the time, the subject, and any other pertinent information that can
4 be extracted from the email, but not any attachments that may be attached to the email 40. In
5 addition, a notification is sent to the sender 30 that its email has been received and that, in order
6 to convey it to the sender, a charge for such a service will be made.

7 The email sender is given the option to accept the charge 32. Is the email sender does not
8 wish to accept the charge the email is discarded 34 and it is not sent to the recipient. If however
9 the sender accepts the charge for the service of forwarding the email 32, the email is
10 subsequently sent with an appropriate identifier to the recipient 28 so that the software that is
11 resident on the recipient's computer knows that the software has been scanned and can be
12 accepted for reading.

13 If however after the sender is notified of the fact that email has been scanned but does not
14 have a password 40, the sender is also asked if, given the information concerning the sender,
15 time, subject matter, and other information, the recipient wants the email 38. If the recipient
16 does not want to receive the email, the screening server discards the email 36. If however the
17 recipient does wish to receive the email, the recipient is subsequently sent the email with the
18 appropriate ID 28 to overcome the screening software at the recipient computer 16.

19 A key aspect of the present invention is that a business model for the receipt and
20 screening of electronic mail at a nominal charge is established. The screening server receives the
21 email as redirected from a recipient computer. Each time that a non-passworded electronic mail
22 is determined by a sender to be worthy of a service charge, that service charge is made by the

1 screening server and shared between the screening server and the recipient. In this way, the
2 recipient is encouraged to receive email that has been screened, and further, the system enhances
3 the electronic mail environment over networks by ensuring that all email is appropriately
4 screened for virus content.

5 The system operates with conventional computer equipment. For example, the recipient
6 computer can simply be an IBM pc or compatible or any other workstation now readily available
7 to the public. The screening server can be a Sun Microsystems server or any other server capable
8 of receiving large volumes of email and screening such email for the presence of any virus. The
9 sending computer is also any computer that now exists that has the capability of sending
10 electronic mail from one point on a network to another.

11 A system for screening email and generating revenue from that email screening activity
12 has now been illustrated. It will be apparent to those skilled in the art that other embodiments of
13 the present invention are possible without departing from the scope of the invention as disclosed.

14 As noted above, the software located on the recipient computer has a number of flexible
15 functions associated with it. For example, the software can automatically screen for any names
16 or addresses which are designated by the recipient as desirable to receive. Any such addresses so
17 designated will not be redirected to the screening server. Further, any such address can also be
18 provided to the screening server so that the screening server itself will simply redirect any email
19 to the recipient without that email being screened.